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# Career Opportunities in Aerospace Technology

Announced by the  
National Aeronautics and Space Administration

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## An Equal Opportunity Employer

The National Aeronautics and Space Administration (NASA) is an agency dedicated to achieving excellence in its technical mandates and missions. NASA recognizes that its most valuable resources in accomplishing these tasks are people. The agency is equally dedicated to achieving its technical missions and goals with a culturally diverse workforce. To this end, NASA's policy is to provide equal employment opportunity for all persons, to prohibit discrimination in employment by NASA because of race, color, religion, sex, age, national origin or nondisqualifying disability and to promote the full realization of equal employment opportunity on the basis of merit and fitness through a continuing affirmative action program throughout the agency.

Issued: March 1995

Inquiries concerning specific vacancies should be directed to the Installation(s) of interest at the address(es) shown on the inside back cover.

National Aeronautics and Space  
Administration Announcement  
Number NN-100

# The Work of NASA

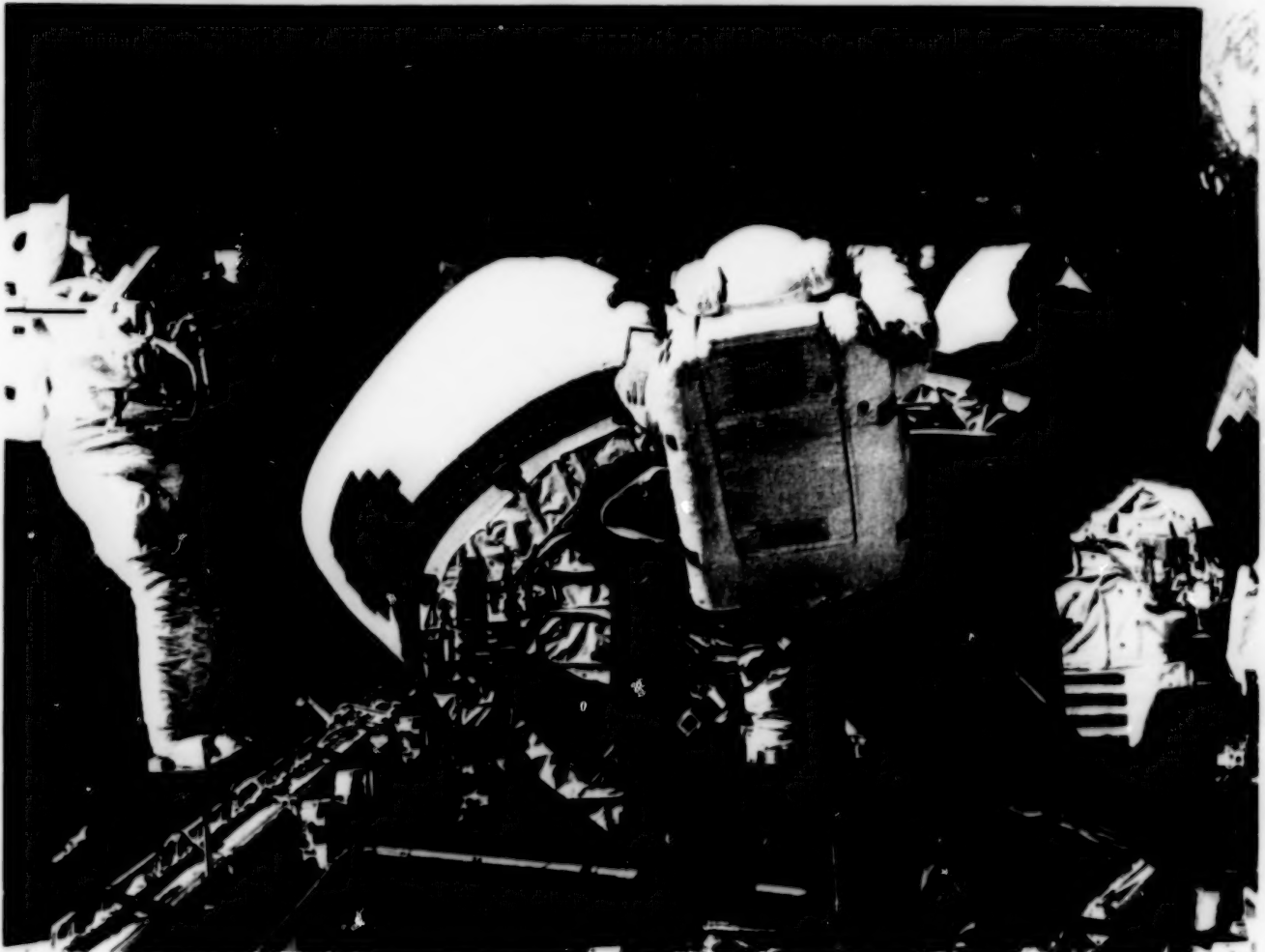
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The National Aeronautics and Space Administration (NASA), an independent civilian government agency, was established October 1, 1958. Throughout its history, NASA has had phenomenal success in space research and exploration. NASA and its predecessor agency also have an unsurpassed record of achievement in aeronautics spanning more than seventy-five years.

NASA's mission includes all matters pertaining to the civilian space and aeronautical research activities of the

Nation. Its work includes basic and applied research for the expansion of human knowledge of phenomena in the atmosphere and space; the improvement of the usefulness, performance, speed, safety and efficiency of aeronautical and space vehicles; the development and operation of vehicles capable of carrying instruments, equipment, supplies and living organisms through space; and the preservation of the role of the United States as a leader in aeronautics and space activities within and outside the atmosphere.

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**Members of the Crew of Endeavour Successfully Capture Intelsat VI**

# Specialties of Aerospace Technology (AST) and Appropriate Fields of Study

The descriptions represent NASA's work and requirements as of the date of this publication, but due to the rapidly changing frontiers of aerospace technology they are subject to change.

## ***Space Sciences (NCC\* 701)***

### **Type of Work**

This includes positions engaged in the study of (1) the Earth and planetary atmospheres and ionospheres; (2) fields and particles in the interplanetary space environment; (3) the sun and extrasolar objects, and radiation emitted by them; (4) the chemical, physical and morphologic properties of moons, planetary bodies and other solid materials in the solar system and of samples therefrom; (5) data obtained from the above investigations; and, (6) development of instrumentation for these purposes. The following specializations are included in this group:

Atmospheres and Ionospheres – Fields and Particles – Stellar Studies – Planetary Studies – Solar Studies

### **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aerospace Engineering, Astronautical Engineering, Astronautics, Earth and Planetary Science, Electrical Engineering (except power), Electronics Engineering, Optical Engineering, Engineering Physics, Space Science. Other appropriate physical science, mathematics or engineering fields are qualifying if the major includes or is supplemented by one Physics or Engineering lab in: Electronics, Optics, Materials, Vibration, High Vacuum Theory, Heat Transfer or comparable field relating to aerospace instrumentation.

## ***Earth Sciences (NCC 702)***

### **Type of Work**

This includes positions that are involved in such activities as development of future remote sensing missions and aircraft experiments: defining new or modifying existing aerospace sensing instrumentation that is used in obtaining data on characteristics and phenomena of the Earth and its atmosphere; as well as utilization and operational control of such instrumentation; analysis, interpretation and

application of data obtained through remote sensing in the biological and physical science disciplines. The following specializations are included in this group:

Earth Sciences Remote Sensing – Climate and Radiation Studies – Atmospheric Chemistry and Dynamics – Global Ecology Studies – Atmospheric Measurements – Applications Data Management – Science Missions

### **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Any appropriate field of engineering, physical or computer science or mathematics. Study must include or be supplemented by six semester hours or the equivalent in appropriate life or other natural science courses, and include or be supplemented by at least two courses which would provide knowledge of subjects appropriate to the vacancy being filled.

## ***Life Sciences and Systems (NCC 709)***

(Most of these positions are located at the Johnson Space Center and the Ames Research Center)

### **Type of Work**

This includes professional positions concerned with (1) research, development and application of man/system integration technology for use in the aerospace environment and (2) research pertaining to man and other life forms in the universe, their interaction with their natural and the space environments; psycho-physiological attributes of man functioning as part of a man-machine system; countermeasures for problems that result when man is exposed to the space flight environment; determining requirements for life support and environment control systems, flight investigations and experiment payloads; origin and evolution of biological processes, systems, structures and species; and means for detection of life and life-related molecules beyond Earth. The following specializations are included in this group:

Biochemical Studies – Physiological Studies – Neurobiological Studies – Chemical and Biological Evolution – Solar System Analysis – Human Performance Studies – Medical Studies – Life Support Studies – Manned Systems

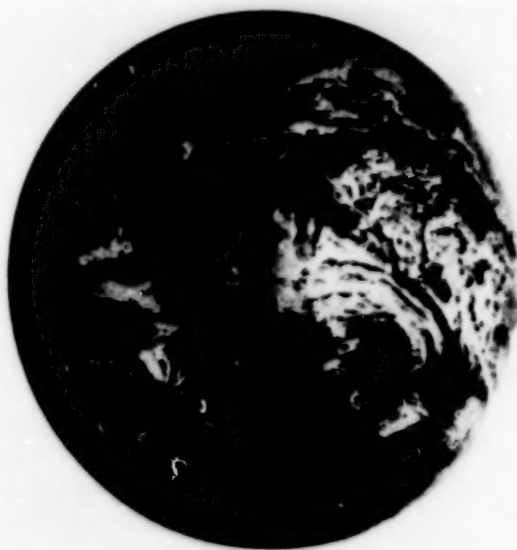
\* NASA Class Code (NCC)



## **Appropriate Fields of Study**

- a. Major study in biology (botany, zoology, biophysics, radiation biology, biochemistry, microbiology, physiology, toxicology), or in behavioral science (experimental, physiological or clinical psychology) or other appropriate field of life science, including or supplemented by at least 20 semester hours of physical science or engineering (undergraduate or graduate), or experience sufficient to provide a basis for understanding, use and interpretation of the highly specialized ground-based or inflight measurement, environmental control, vehicle control and other equipment required for manned or organism bearing aerospace flights and voyages; or
- b. Major study in an appropriate engineering or physical science, including or supplemented by at least 20 semester hours of physiology, experimental or physiological psychology, or other appropriate life science, or experience in biotechnology, human factors engineering or other appropriate life science field.

The undergraduate study, graduate study and any qualifying experience must provide the knowledges, skills and abilities required in the position being filled.



## ***Fluid and Flight Mechanics (NCC 710)***

### **Type of Work**

This includes positions that are engaged in research, development, test and evaluation in the area of fluid and flight mechanics pertaining to aerospace vehicles.

Activities include investigations of the force and motion mechanics of vehicles in various atmospheric and celestial environments, wind tunnel testing and computational analysis of aircraft and spacecraft fluid flow

phenomena and flight mechanics problems, studies of the aerothermodynamics of vehicles entering planetary atmospheres including dissociation and ionized gas effects, the development of systems to control, navigate and guide flight vehicles in planetary atmospheres and in space including trajectory analysis, investigations of the effects of structural vibrations and noise on the design and operation of vehicles, studies of space flight vehicle design and mission analyses, and research of the characteristics of electrically conducting fluids under the action of magnetic and electric fields. The following specializations are included in this group:

Aerothermodynamics – Navigation, Guidance and Control Systems – Fluid Mechanics – Flight Vehicle Acoustics – Heat Transfer – Aerospace Vehicle Design and Mission Analysis – Stability, Control and Performance – Flight Vehicle Atmospheric Environment – Basic Properties of Gases

## **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Astrophysics, Electrical Engineering (except power), Electronics Engineering, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics. Other appropriate physical or computer science, mathematics or engineering fields are qualifying if the major includes or is supplemented by at least 12 semester hours (or the equivalent) of appropriate physical science or engineering courses. Course work should include or be supplemented by nine semester hours (or the equivalent) of physics, thermodynamics, fluid dynamics or gas dynamics.

## ***Materials and Structures (NCC 715)***

### **Type of Work**

This includes positions engaged in research, development, design, manufacture, processing, test and/or evaluation work (1) on various kinds of metallic and non-metallic materials for use in aerospace systems and vehicles (2) into the effects of aerospace environments, loads and stresses on the structures and materials of aerospace vehicles and support systems and (3) on the problems of friction and lubrication in relation to these systems. The following specializations are included in this group:

Structural Dynamics – Mechanics of Materials – Structural Materials – Aerospace Metallic Materials – Aerospace

Polymeric Materials – Friction and Lubrication – Structural Mechanics – Flight Structures – Basic Properties of Materials – Aerospace Ceramic Materials

### **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Chemical Engineering, Chemistry, Materials Engineering, Materials Science, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics, Structural Engineering, Welding Engineering.

Other majors will qualify if the major includes or is supplemented as shown below:

Ceramics or Ceramics Engineering (with 12 semester hours in refractory ceramics, cermets or protective coatings), Civil Engineering, Computer Science, or Geology (with 12 semester hours in strength of materials, structures, thermodynamics, and/or basic static and dynamics). Metallurgy or Metallurgical Engineering (with 12 semester hours in physical or adaptive metallurgy, high temperature metals and alloys, cermets). Mathematics or Nuclear Engineering (with nine semester hours in physics, structures, materials or other appropriate courses). Other appropriate physical science or engineering fields may qualify with appropriate supplemental courses.

## ***Propulsion and Power (NCC 720)***

### **Type of Work**

This includes positions engaged in research, development, design, test and evaluation of aircraft and aerospace propulsion systems (e.g., liquid, solid, electrical, etc., separately or in combination) and aerospace power generation systems and their component parts and subsystems, including processes and systems for the direct and indirect conversion of energy into power for aerospace applications. The following specializations are included in this group:

Electric Propulsion Systems – Liquid Propulsion Systems – Solid Propulsion Systems – Electrical Power Systems – Direct Energy Conversion – Propulsion Flow Dynamics – Mechanical Components – Fuels and Combustion Processes – Airbreathing Propulsion Systems

### **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautics, Chemistry, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics.

Other majors will qualify if the major includes or is supplemented as shown below:

Electrical Engineering, Electronics Engineering, Applied Mathematics (or other field), if the major includes or is supplemented by one course in thermodynamics, nuclear physics, rocket propulsion fundamentals, gas dynamics or modern or molecular physics.

Astronautical Engineering, Chemical Engineering, Pure Mathematics (or other related field), if includes or is supplemented by nine semester hours (or the equivalent) in physics, thermodynamics, chemistry or closely related fields.

## ***Flight Systems (NCC 725)***

### **Type of Work**

This includes positions engaged in research, development, design, test and evaluation of an aerospace flight vehicle and its component subsystems (including stages, propulsion, control and guidance, data management and software, structure, payloads, etc.) or of an aerospace flight vehicle and its related external systems (e.g., ground support, command and telemetry). The following specializations are included in this group:

Flight Systems Design – Flight Systems Test – Reliability – Quality Assurance – Flight Systems Safety – Experimental Manufacturing Techniques – Electrical Systems – Aerospace Flight Systems – Electronic Systems Failure Analysis – Crew Station Systems – Environmental Control Systems

### **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Biomedical Engineering, Industrial Engineering, Materials Engineering, Materials Science, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Metallurgical Engineering, Metallurgy, Nuclear Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics, Structural Engineering, Welding Engineering.

Other majors will qualify if the major includes or is supplemented as shown below:

Ceramic Engineering, Ceramics, Chemical Engineering, Chemistry, Computer Science, Computer Engineering, Electrical Engineering, Electronics Engineering, Mathematics (Pure or Applied) (or other related field), if includes or is supplemented by nine semester hours (or the equivalent) in machine design, mechanics, hydraulics, dynamics, thermodynamics, mechanical design or mechanical measurement.

## ***Measurement and Instrumentation Systems (NCC 730)***

### **Type of Work**

This includes positions that are engaged in research, development, design, fabrication, test and evaluation of equipment, systems or techniques for detecting, referencing, computing, recording and measuring physical conditions and environments, and communication, control, test and calibration operations related to space and ground systems. The following specializations are included in this group:

Sensors and Transducers – Electromagnetic Systems – Optical Physics – Control Systems – Tracking and Telemetry Systems – Tracking Systems – Telemetry Systems – Telecommunications – Electronics of Materials – Electronic Instrumentation Systems – Guidance and Navigation Systems – Microwave Physical Electronics – Electro-Optical Sensor Systems – Measurement Standards and Calibration

### **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Astronomy, Astrophysics, Chemical Engineering, Electrical Engineering (except power), Electronics Engineering, Applied Mechanics, Mechanical Engineering,

Engineering Mechanics, Nuclear Engineering, Nuclear Engineering Physics, Oceanography, Optical Engineering

Other majors will qualify if the major includes or is supplemented as shown below:

Biomedical Engineering, Chemistry, Computer Science, Computer Engineering, Mathematics (Pure or Applied), Physics, Applied Physics, Engineering Physics (or other related field), if includes or is supplemented by two courses in solid state physics, materials, optics, statics and dynamics, electricity and electronics, electron optics, kinetic theory of gases, electromagnetic propagation or radiation, semiconductors, vibration, high vacuum theory, information theory or heat transfer.

## ***Data Systems (NCC 735)***

### **Type of Work**

This includes positions engaged in research, development, design, test and evaluation of data handling and computing equipment for aerospace purposes (hardware) and the research and development of systems for reducing and computing data (software) or simulating aerospace conditions by use of mathematical models, automation and robotics. The following specializations are included in this group:

Data Systems – Hardware Systems – Data Analysis – Theoretical Simulation Techniques – Computer Research and Development – Software Systems – Modelling – Flight Data Systems – Ground Data Systems – Flight Software Systems – Ground Software Systems – Flight Hardware Systems – Ground Hardware Systems – Data Systems Analysis

### **Appropriate Fields of Study**

Required college major for applicants qualifying on the basis of undergraduate education only: Computer Engineering

Other majors will qualify if the major includes or is supplemented as shown below:

- a. Computer Science and Pure Mathematics are fully qualifying for Data Analysis, Modelling and Theoretical Simulation Techniques positions without further course requirements.

For Data Systems, Hardware Systems and Software Systems positions, Computer Science and Pure Mathematics are qualifying if the major includes or is supplemented by 12 semester hours (or the equivalent) in



appropriate Physical Science or Engineering courses and includes or is supplemented by least two courses shown under "b.2."

- b. Applied Mathematics is qualifying if includes or is supplemented by at least two courses listed below:

1. For Data Analysis, Modelling and Theoretical Simulation Techniques:

numerical methods (or numerical analysis)  
linear algebra  
theory of equations  
differential equations  
mathematical statistics (if six semester hour course)  
operating systems  
theory of computation  
computer networks  
programming languages  
data structures  
data base management  
computer graphics  
compiler construction  
computer architecture  
software engineering

2. For Data Systems, Hardware Systems and Software Systems:

electronics  
electrical networks  
solid state physics (for transistors, tapes, etc.)  
optics (for simulation)  
electricity and magnetism  
computer organization  
logic design  
control systems  
communication theory

- c. Other appropriate physical science and engineering majors are qualifying if the major includes or is supplemented by six semester hours (or the equivalent) in Mathematics beyond Basic Calculus and includes or is supplemented by at least two courses shown above under "b."

## ***Facilities (NCC 740)***

### **Type of Work**

This includes positions engaged in (1) research, development, design, test, evaluation and construction of facilities, systems, equipment, controls and support facilities for use in aerospace research development, testing and operational activities; or (2) positions engaged in planning, developing, coordinating and directing operation of aerospace flight vehicle experimental facilities and

equipment. The following specializations are included in this group:

Experimental Facilities Development – Mechanical  
Experimental Equipment – Gas and Fluid Systems –  
Electrical Experimental Equipment – Experimental  
Facilities Techniques – Facilities Systems Safety

### **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Architecture, Astronautical Engineering, Ceramic Engineering, Ceramics, Chemical Engineering, Civil Engineering, Electrical Engineering, Electronics Engineering, Industrial Engineering, Materials Engineering, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Metallurgical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Optical Engineering, Structural Engineering, Welding Engineering

Other majors will qualify if the major includes or is supplemented as shown below:

Astronautics, Biomedical Engineering, Computer Science, Computer Engineering, Geology, Materials Science, Mathematics (Pure or Applied), Metallurgy, Physics, Applied Physics, Engineering Physics (or other related field), if includes or is supplemented by 12 semester hours (or the equivalent) in appropriate physical science or engineering courses.

## ***Operations (NCC 745)***

### **Type of Work**

This includes positions responsible for developing and analyzing operational concepts, and planning spaceflight operations; management and integration of the operations activities required to support manned spaceflight missions; as well as positions that develop and validate flight procedures and crew activity plans, establish requirements for and conduct training of spaceflight crews, and those who serve as members of manned spaceflight crews or pilots of research and development aircraft. The following specializations are included in this group:

Flight Training – Flight Systems Operations – Mission Support Requirements and Development – Mission Operations Integration – Flight Activity Planning – Mission Specialist Astronaut – Pilot Astronaut – Research Piloting – Launch and Flight Operations – Aircraft Mission Operations



## **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Ceramic Engineering, Ceramics, Chemical Engineering, Civil Engineering, Electrical Engineering, Electronics Engineering, Industrial Engineering, Materials Engineering, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Metallurgical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Optical Engineering, Structural Engineering, Welding Engineering.

Other majors will qualify if the major includes or is supplemented as shown below:

Astronautics, Biomedical Engineering, Computer Science, Computer Engineering, Geology, Materials Science, Mathematics (Pure or Applied), Metallurgy, Physics, Applied Physics, Engineering Physics (or other related field), if includes or is supplemented by 12 semester hours (or the equivalent) in appropriate physical science or engineering courses.

## **Additional Requirements for Research Piloting Positions**

(NOTE: Research Piloting positions are extremely rare)

In addition to the basic education requirements (successful completion of a standard professional curriculum in an accredited college or university leading to a bachelor's degree with major study in an appropriate field of engineering, physical science, life science or mathematics), you must have a current FAA commercial pilot's license with instrument rating or a pilot and instrument rating from the armed service. One, or a combination, of the following criteria must also be met:

### **GS-9**

A minimum of 900 hours of pilot in command (or first pilot) flight time which included at least 500 hours on jet aircraft having at least 3,000 pounds of thrust per engine; or one year of research piloting experience.

### **GS-11**

A minimum of 1,000 hours of pilot in command (or first pilot) flight time which included at least 500 hours on jet aircraft having at least 3,000 pounds of thrust per engine;

or one year of research piloting experience equivalent to grade GS-9.

### **GS-12/15**

A minimum of 1,500 hours of pilot in command (or first pilot) flight time which included at least 500 hours on jet aircraft having at least 3,000 pounds of thrust per engine; plus one year of research piloting experience equivalent to the next lower grade in the Federal service; or one year of progressive research piloting experience equivalent to the next lower grade.

For positions whose principal duties involve research and development of experimental rotorcraft, pilot in command (or first pilot) flight time in aircraft powered by engines having a total of 1,000 horse-power or more in lieu of flight time in jet aircraft may be substituted at all grades.

## **Management (NCC 770)**

(Most of these positions are at senior grade levels i.e., GS-12/15.)

## **Type of Work**

This includes positions engaged in program development, direction and coordination of aerospace research, development, design, test and operations efforts. The work includes determining and evaluating project/program requirements; overall long and short range planning; formulation and implementation of project/program management systems and controls; managing resources; identification and resolution of interface, integration and technical problems; conducting or participating in status reviews and documenting and reporting of status results, problems, concerns, etc.; and assessing contractor performance.

## **Appropriate Fields of Study**

Required college majors for applicants qualifying on the basis of undergraduate education only:

Any field of engineering, physical science, life science or mathematics related to the program or project. The major must include or be supplemented by 12 semester hours (or the equivalent) in physical science or engineering courses and by mathematics through and including the integral calculus level.

# NASA Installations



## Best Opportunities for Employment with NASA

	SPACE SCIENCES - 701	EARTH SCIENCES - 702	LIFE SCIENCES & SYSTEMS - 703	FLUID & FLIGHT MECHANICS - 704	MATERIALS & STRUCTURES - 705	PROPULSION & POWER - 706	FLIGHT SYSTEMS - 707	MEASUREMENT & INSTRUMENTATION - 708	DATA SYSTEMS - 709	FACILITIES - 710	OPERATIONS & MAINTENANCE - 711	MANAGEMENT - 712
Ames Research Center Moffett Field, CA 94035-1000	●	●	●	●	●	●	●	●	●	●	●	●
Dryden Flight Research Center Edwards, CA 93523-1000			●	●	●	●	●	●	●	●	●	●
Goddard Space Flight Center & Wallops Flight Facility Greenbelt, MD 20771-0001	●	●		●	●	●	●	●	●	●	●	●
Johnson Space Center Houston, TX 77058-3696			●	●	●	●	●	●	●	●	●	●
Kennedy Space Center KSC, FL 32899-0001				●	●	●	●	●	●	●	●	●
Langley Research Center Hampton, VA 23681-0001		●		●	●	●	●	●	●	●	●	●
Lewis Research Center Cleveland, OH 44135-3191				●	●	●	●	●	●	●	●	●
Marshall Space Flight Center MSFC, AL 35812-0001	●			●	●	●	●	●	●	●	●	●
Stennis Space Center SSC, MS 39529-6000					●			●	●		●	●
NASA Headquarters, FPH 1 Washington, DC 20546-0001	●	●	●	●	●	●	●	●	●	●	●	●

1 Generally senior-level positions only, not entry.

\* Most science and engineering positions at the senior level.

# Education and Experience Requirements and Basis of Ratings

## ***Basic Education Requirements for All NASA AST Positions:***

Successful completion of a standard professional curriculum in an accredited college or university leading to a bachelor's degree with major study in an appropriate field of engineering (**not engineering technology**), physical science, life science or mathematics is required. The degree must include or be supplemented by course work appropriate to the AST specialty for which application is made; refer to the section, "Appropriate Fields of Study," under each AST specialty. (In some cases a graduate degree in an appropriate field or unconditional acceptance as a candidate for an advanced degree in an appropriate field by an accredited institution may be submitted. For applicants qualifying on the basis of graduate education and/or experience, any of the undergraduate majors shown below is acceptable if the required graduate study and/or professional experience is closely related to this type of work and provides the knowledges, skills and abilities required in the position being filled.)

General Listing of Appropriate Academic Fields of Study for Aerospace Technology Positions:

Aeronautical Engineering  
Aeronautics  
Aerospace Engineering  
Astronautical Engineering  
Astronautics  
Astronomy  
Astrophysics  
Biomedical Engineering  
Ceramic Engineering  
Ceramics  
Chemical Engineering  
Chemistry  
Civil Engineering  
Computer Engineering  
Computer Science\*  
Earth and Planetary Science  
Electrical Engineering  
Electronics Engineering  
Geology  
Geophysics  
Industrial Engineering  
Materials Engineering  
Materials Science  
Mathematics, Applied or Pure  
Mechanics, Applied or Engineering

Mechanical Engineering  
Metallurgical Engineering  
Metallurgy  
Meteorology  
Nuclear Engineering  
Nuclear Engineering Physics  
Oceanography  
Optical Engineering  
Physics  
Physics, Applied or Engineering  
Space Science  
Structural Engineering  
Welding Engineering

or other appropriate physical science or engineering field.

\*Curriculum must include 30 semester hours of course work in a combination of mathematics, statistics and computer science that provide in-depth knowledge of the (1) theoretical foundations and practical applications of computer science; and, (2) essential mathematical and statistical techniques. Of the 30 semester hours, 15 must be in any combination of statistics and mathematics, which includes differential and integral calculus.

## **Grade Level Requirements for GS-7 through GS-15**

*GS-7: In addition to the basic education requirement:*

- a. One year of appropriate professional experience at least equivalent to GS-5; or
- b. One full academic year of graduate level education in an appropriate field; or any equivalent combination of experience and graduate study; or
- c. Completion of all requirements for a bachelor's degree which meets one of the following SUPERIOR ACADEMIC ACHIEVEMENT STANDARDS:
  1. A standing in the upper third of your college class or major subdivision (e.g., school of engineering) at the time you apply; or
  2. A grade point average of 2.90 of a possible 4.0 or its equivalent for all courses completed, either: (a) at the time of application; or (b) during the last two years of your undergraduate curriculum; or

3. A grade point average of 3.5 of a possible 4.0 or its equivalent for all courses completed in a qualifying major field of study, either: (a) at the time of application; or (b) during the last two years of your undergraduate curriculum; or
4. Election to membership in one of the national honorary societies (other than freshman societies) that meets the requirements of the Association of College Honor Societies.

Seniors may be rated provisionally eligible under c-2, or 3, if they have the required average after the junior year. They will be required to submit proof that they maintained the required average in their senior year; or

- d. Twelve months of student trainee experience (does not include periods of leave without pay) that includes at least one work period (two months or 320 hours) equivalent to GS-5 or at least 15 months of appropriate student trainee experience which includes one work period equivalent to the GS-4 level; or
- e. For engineering positions, successful completion of a five-year program of study (i.e. one designed to be completed in no less than five years) of at least 160 semester hours;
- f. For engineering positions, if you have a professional engineering degree, up to 12 months of appropriate experience gained as a technician or technologist equivalent to the GS-5 level or higher may be credited in qualifying for GS-7; or
- g. Successful completion of all requirements for two bachelor's degrees, one in an appropriate field of science or engineering; or
- h. Six months aggregate of specialized experience or training, including three months gained after the junior year in a subprofessional, semiprofessional or technician status, which may have been obtained in a laboratory or elsewhere during a summer period or assisting a professor, or on active military duty; or
- i. Honors or elective positions indicating superior leadership other than scholastic, provided that your academic standing was in the upper half of your graduating class; or
- j. Patterns of courses which have unusual preparatory value or direct relatedness to the particular aerospace specialty for which you are being considered; or
- k. Creative research aptitude or special talent for NASA scientific or engineering work, as shown by evidence obtained and documented by means of certifications

from college professors or officials, standardized questionnaires or similar techniques.

**GS-9: In addition to the basic education requirement:**

- a. One year of professional experience in an appropriate field at least equivalent in difficulty and responsibility to GS-7 level in the Federal service within or closely related to the aerospace technology specialty for which application was made; or
- b. Completion of all requirements for a master's or equivalent graduate degree in an appropriate field or;
- c. Two full academic years of graduate education in an appropriate field; or
- d. An equivalent combination of experience and graduate study.

**GS-11: In addition to the basic education requirement:**

- a. One year of professional experience in an appropriate field at least equivalent in difficulty and responsibility to GS-9 level work in the Federal service within or closely related to the aerospace technology specialty for which application is made; or
- b. Completion of all requirements for a doctoral degree (Ph.D. or equivalent) in an appropriate field; or
- c. Three full academic years of graduate education in an appropriate field; or
- d. An equivalent combination of experience and graduate study; or
- e. For Research Positions only: completion of all requirements for a master's or equivalent degree in an appropriate field.

**GS-12 through GS-15: In addition to the basic education requirement:**

- a. One year of professional experience in an appropriate field at least equivalent in difficulty and responsibility to the next lower grade in the Federal service within or closely related to the aerospace technology specialty for which application is made; or
- b. Any equivalent combination of experience and graduate study
- c. For GS-12 research positions only: completion of all requirements for a doctoral degree (Ph.D. or equivalent) in an appropriate field.



## General Information

- **Crediting Experience** - For purposes of crediting experience, one year equals 52 weeks of full-time work.
- **Part-Time or Unpaid Experience** - Credit will be given for all pertinent experience of the type required, regardless of whether compensation was received or whether the experience was gained on a part-time or intermittent basis. Part-time or unpaid experience will be credited on the basis of the aggregate or total time actually spent in appropriate activities.  
  
If you wish to receive credit for such experience, you must indicate clearly the nature of your duties and responsibilities in each activity, and the number of hours a week spent in each.
- **Credit for Military Service** - Time spent in military service may be credited as an extension of experience gained immediately prior to entering the service or it may be credited on its own merits, whichever is more favorable.
- **Credit for Research** - Positive evidence of highly creative or outstanding research, e.g., development of a basic principle, concept, method, approach or technique which opened the way for major advances in the field, may result in eligibility at one grade higher than that for which you would normally be rated. This principle does not apply if you are eligible only on the basis of graduate study.

- **Students** - Applications will be accepted from students who expect to complete the required education within nine months after date of filing application. Students may receive and accept job offers from NASA prior to graduation but may not enter on duty before completing all required education.
- **Citizenship** - Employment in competitive service positions in the Federal Government of the United States is restricted by Presidential Executive Order to U.S. citizens except where a noncitizen possesses unusually valuable scientific or technical skills not readily obtainable from a U.S. citizen.
- **Basis of Rating** - No written test is required. Qualifications will be evaluated by NASA professionals trained in the rating procedure, based on evaluation of experience, education and training as shown on the application and on further corroborative and supplementary information which may be obtained.
- **Administrative Requirements** - These vary by Installation. Applicants are subject to any administrative requirements imposed by the Installations.
- **How Positions are Filled** - Positions will be filled from among the candidates who meet all eligibility and qualification requirements for the specialty which is appropriate to the specific position vacancy.

All qualified applications will receive consideration for employment without regard to race, color, age, religion, sex, national origin, or nondisqualifying disability.



Artist Rendition of the X-30 National Aero-Space Plane in Horizontal Orbit

# How to Apply

Submit a resume or other application directly to the NASA Installation Personnel Office where you would like to work using the addresses shown below. Contact the NASA Personnel Office to request additional information to assist you in providing a complete application. (Note: If you have not provided the minimum required information, you may be determined ineligible for the position(s)).

You must indicate NASA specialty code(s) for the position(s) you desire (maximum of 3) using the matrix below. When describing experience, provide sufficient detail to identify the nature and level of the positions you held, research or technical contributions, degree of independence, and leadership roles. For research and development work, list publications and technical presentations. If research work was accompanied by teaching, show the percentage of time spent on each phase of work.

**Proof of Education:** As evidence of meeting the basic education requirement, submit college transcript (preferred) **OR** a list of college courses (including grades and grade point average). Include courses expected to be completed in 9 months of the application date. If you wish consideration of graduate work, you may submit the above **OR** a copy of your diploma if it shows an academic field of study appropriate to a specialty.

**Proof of Veteran's Preference:** Submit a copy of DD214 if claiming 5-point veteran's preference, and Standard Form 15, with supporting documentation, if claiming 10-point veteran's preference.

**Note: Only applicants who provide all of the required documents and information will be considered.** For assistance, you may contact the NASA Personnel Office or your local Office of Personnel Management. NASA's work and requirements are subject to change. Applicants must meet any administrative requirements imposed by the Installations.

	SPACE SCIENCES - 701	EARTH SCIENCES - 702	LIFE SCIENCES & SYSTEMS - 703	FLUID & FLIGHT MECHANICS - 704	MATERIALS & STRUCTURES - 705	PROPULSION & POWER - 706	FLIGHT SYSTEMS - 707	MEASUREMENT & INSTRUMENTATION - 708	DATA SYSTEMS - 709	FACILITIES - 710	OPERATIONS (cf Manual) - 711	MANAGEMENT - 712
Ames Research Center Moffett Field, CA 94035-1000	•	•	•	•	•	•	•	•	•	•	•	•
Dryden Flight Research Center Edwards, CA 93523-1000				•	•	•	•	•	•	•	•	•
Goddard Space Flight Center & Wallops Flight Facility Greenbelt, MD 20771-0001	•	•		•	•	•	•	•	•	•	•	•
Johnson Space Center Houston, TX 77058-3696			•	•	•	•	•	•	•	•	•	•
Kennedy Space Center KSC, FL 32899-0001				•	•	•	•	•	•	•	•	•
Langley Research Center Hampton, VA 23681-0001		•		•	•	•	•	•	•	•	•	•
Lewis Research Center Cleveland, OH 44135-3191				•	•	•	•	•	•	•	•	•
Marshall Space Flight Center MSFC, AL 35812-0001	•			•	•	•	•	•	•	•	•	•
Stennis Space Center SSC, MS 39529-6000					•			•	•		•	•
NASA Headquarters, HPHT Washington, DC 20546-0001	•	•	•	•	•	•	•	•	•	•	•	•

† Generally senior level positions only, not entry.

• Most science and engineering positions at the senior level.

**U.S. CITIZENSHIP IS REQUIRED**  
**NASA IS AN EQUAL OPPORTUNITY EMPLOYER**



END

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